



LKS2 Design Technology Curriculum and Knowledge Map



Upper Key Stage 2



Electrical Systems: Torches – 4 weeks

NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make – select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities

Technical Knowledge – apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- I can **describe** how an electrical circuit works with a switch. (B)
- I can **research** electrical products and evaluate their effectiveness. (D)
- I can **identify** a set of specific user needs and design a product to suit. (A)

Electrical Systems: Electric Posters = 4 weeks (Moved from Year 3 as electrical circuits are a Year 4 science topic)

- I can **describe** the purpose of information design. (B)
- I can **research** a set topic to generate ideas for my electrical poster. (D)
- I can **assemble** my final product and apply my knowledge of making a simple circuit. (A)



Pentecost 2

Cooking and nutrition: Adapting a recipe – 4 weeks

NC: Make - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate - investigate and analyse a range of existing products

- I can **evaluate** a product and describe the taste, smell, texture and appearance. (B)
- I can **propose** a biscuit design that meets a given design brief and budget. (D)
- I can **apply** my knowledge of safety and hygiene when making my biscuit. (A)



Advent 2

Structures: Pavilions – 4 weeks

NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make – select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities

Technical Knowledge – apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- I can **compare and contrast** different frame structures for stability and strength (A)
- I can **design and build** a free-standing frame structure that is stable and strong. (B)
- I can **select** appropriate materials for my frame structure and cladding, **giving reasons** for my choices (D)



Advent 1

Mechanical Systems: Sling-shot car – 4 weeks

NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make – select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

Evaluate – evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

- I can **investigate** which car body shapes reduce air resistance. (D)
- I can **design and make** a model of my chosen car body design, **applying** my knowledge of air resistance and constructing nets. (A)
- I can **evaluate** the speed of my design and give reasons. (A)



Year 4

Pentecost 2

Cooking and Nutrition: Eating Seasonally- 4 weeks

NC: Cooking and Nutrition – understand and apply the principles of a healthy and varied diet

- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques

- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

- I can **describe** the advantages of eating seasonal foods grown in the UK (B)
- I can **design** a healthy and nutritious recipe, using seasonal fruits and vegetables. (B)
- I can **demonstrate** how to safely follow a recipe. (A)



Lent 2

Digital World: Wearable Tech - 6 weeks

NC: Design – use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

Evaluate – investigate and analyse a range of existing products

Technical Knowledge – apply their understanding of computing to program, monitor and control their products

- I can **compare and contrast** existing digital products (A)
- I can **label** my diagram to communicate my ideas (B)
- I can **describe** how to use a code to program and control my product. (B)
- I can **demonstrate** my ideas through computer-aided design (A)



Advent 2

Structures: Constructing a Castle – 4 weeks

NC: Design – select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

Evaluate – investigate and analyse a range of existing products

Technical Knowledge – apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- I can **locate and label** the different 2D and 3D shapes used in a castle design. (B)
- I can **describe** how multiple shapes are combined to form strong and stable structures. (B)
- I can **apply** my knowledge of cutting and folding to accurately construct 3D nets. (A)



Advent 1

Mechanical Systems: Pneumatic toys – 4 weeks

NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams.

Evaluate – evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Technical Knowledge - understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

- I can **label** a diagram to show how pneumatic systems work (B)
- I can **apply** what I know about pneumatic systems to design and make a toy (A)
- I can **describe** how my design meets the design criteria and suggest improvements. (B)



Year 3

KS1